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Local connection through making: from personal to collective exploration

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Abstract

This paper for Making Futures' sixth issue, under the theme of People, Place, Meaning: Crafting Social Worlds and Social Making, addresses reflections from the presentation of the research project Local connection through making at the 2019 conference and subsequent reflections. Moreover, it presents its unfolding, as independent ongoing research around making practices in the twenty first century and what can be learned from past and alternative perspectives of human creation, material culture, and embodied knowledge. The research started as a master's project, done through an auto-ethnography exploration of one practice – pottery making – and as an exploration of the territory of the city of Barcelona and the agents involved in the work with clay, both in traditional and innovative ways. The research was deployed in three stages: Understanding, Making, and Sharing. As part of the Making phase, the project assessed the possible interactions of craft practices and Fab Lab makerspaces, as potential spaces of making in the urban context, open for their communities. One of the outcomes of the Sharing phase was a toolkit suggesting interactions between a crafts-approach to making and new digital tools. This was later put into practice with a workshop done in the Maker Faire Barcelona 2019 event, in collaboration with Jan Madrenas, a Catalan ceramist, and the designer Barbara Drozdek. Participants were invited to create a bowl from clay, learning traditional techniques, as coil construction, and later to interact with digital tools, exploring 3D scanning and the making of digital 3D models out of their creations. This activity was fundamental to understand participants' perception of physical and digital activities and how this could inform the state of our societies in relation to materiality, as people are driven into a much digitalized world. The results and reflections around this activity are presented in the paper. Additionally, it addresses topics related to the global x local debate and knowledge transmission and access. The intention is to possibly pave new narratives in regaining a connection to making and consuming at local level, which later can be reflected on a global scale, attending to UN's Sustainable Development Goals; especially the ones dedicated to 'Sustainable Cities and Communities' and 'Responsible Consumption and Production'.

Keywords

making, craftsmanship, material culture, embodied knowledge, digital craftsmanship, makerspaces, communities

Introduction

The research project Local connection through making started from reflections around the current relationship between people, materials, and their place. The intention of humanity to shape the natural landscapes in their surroundings and manipulate the materials they can extract from them is intrinsically intertwined to the evolution of the species. By evolving knowledge, improving methods and processes, humanity gained the ability to transform natural materials into artificial and, most of the time, long-lasting items, shelters, infrastructures. The uttermost human creation can be considered the city. While inhabiting this communal created space, societies elaborated different practices to improve quality of life, and so, making practices have been in constant evolution. How do we find ourselves today? In a hyperconnected post-industrial world that still operates in the same extractive logic inherited from colonialism which, being accentuated by the industrial revolution, has left us, humans, with a system of inhabiting planet Earth that consumes more than the planetary cycle can regenerate in the year. This situation of living exacerbates the great tendency of losing connection to our real environments. People buy goods made in faraway lands, without knowledge of materials origins and labor conditions in which they were manufactured. Moreover, the things people are buying have less and less relation to their context and cultural expressions. In the last decades, the migration of rural communities to cities has been constant and it is estimated that sixty-eight per cent of the world population is projected to live in urban areas by 2050 (UN, 2019). As pointed out by Lucy R. Lippard (1997), people do not know what is happening in the lands they inhabit, but there is a way of acknowledgement:

"You are here", insist the arrows on maps and guides. How many of us really are? One way to find ourselves is to walk the map, to think about how the land around us is being and has been used. Looking at land through non-expert eyes, we can learn a lot about our own assumptions and about the places we live and pass through. (p.125)

Considering this context, the research project wanted to explore the possibilities of making in cities of the twenty first century and how making practices can be a tool of connection between people, materials and a place, to regenerate these relations.

As a way to structure the work for the master's project, the investigation started from a first-person perspective, through an auto-ethnography exploration. This process was then structured in three stages: Understanding, Making and Sharing. With the conclusion of the master's project and a continued interest around the subjects inquired, it evolved into a continuous independent research project, expanding into a collective exploration, with the proposition of workshops. The concept for these activities is based on the interaction of craft practices with digital tools, mediated by craftspeople and designers. A first iteration took place at Maker Faire Barcelona 2019 event, in collaboration with Jan Madrenas, a Catalan ceramist, and the designer Barbara Drozdek. By understanding participants' perception, it was possible to improve the proposition and conceptualize different formats

of workshops that can be iterated in the future. This paper presents the different phases of the research project, going from the various stages deployed during the master's project, the personal exploration, to the experience of doing the workshop, a collective exploration.

Personal Exploration: Auto-ethnography

As pointed previously, the research started as part of a master's degree and involved the exploration of a new city, Barcelona, in Spain. The displacement from one culture to another brings multiple possibilities as well as challenges. The dimension of such experience can be understood in this passage from the book Migrancy, culture, identity by Iain Chambers (1994):

To come from elsewhere, from "there" and not "here," and hence to be simultaneously "inside" and "outside" the situation at hand, is to live at the intersections of histories and memories, experiencing both their preliminary dispersal and their subsequent translation into new, more extensive, arrangements along emerging routes. (p.6)

The opportunity to do the master's degree made it possible to acquire academic knowledge but also brought the possibility to explore an alternative context of living, settling a novel lifestyle. In the first weeks or even months of living in a new city, everything from one's everyday life needs to be adjusted. It includes inhabiting a flat with a different layout plan and environmental conditions, in a building with particular codes, in a neighborhood with specific characteristics. The way one moves around the city, the way one feeds themselves and the way one shops for goods are all new constructs in the given environment. The research project emerged from previous reflections on the relations and conventions that people create around their everyday life, which have a direct impact on the environment they inhabit. For this reason, the master's project intended to examine the current relationship between people, materials and their place. This understanding would enable a future proposition to restore relationships and improve habits and practices, topics very much related to the framework of Transition Design (Irwin et al., 2015). Considering that the learning during the process of the research would be contextualized, situated knowledge, the project deployment happened through auto-ethnography; with two main questions paving the intentions of the research project:

Where are the possibilities of making in the urban context of the twenty first century?
How can making be a tool of connection between people, materials, and a place?

To do the proposed exploration, these intentions were analyzed with the lenses of one making practice, a craft that would enable the complete learning process, from a position of zero previous knowledge to a point of understanding the materials, techniques and relationships that involve the craft practice in that given territory. Pottery making has a deep connection with the Iberian territory and especially with the Mediterranean culture, where Barcelona is located. The proposition to explore a craft from the beginning, allowed the full discovery of the practice and the universe surrounding it – the materials, the tools, the techniques – making it possible to build a material consciousness (Sennett, 2008). As mentioned before, the research was divided into three phases: Understanding, Making and Sharing. In the process of deploying each stage, the relationship with the city of Barcelona was deepened, through visits at studios in different areas of the city – walking the map, as

suggested by Lippard (1997) – and by meeting different practitioners of the craftsmanship of pottery making. The spatialization of this experience can be seen in the image below.

Fig. 1 – Places visited in Barcelona during the development of the research project.

Since the research focused also on uncovering the emergent practices around making in the twenty first century, it analyzed concepts around the circular economy, micro-manufacturing with digital tools and new community making spaces, as makerspaces and Fab Labs. Special attention was put in understanding and exploring the possibilities of new technologies, such as 3D printing and the rise of designed materials, like DIY materials or new materials arising from other manufacturing processes, as seen in the application of circular economy principles to making processes.

I. Understanding

The initial phase of the research project, Understanding, covered the learning of pottery

making and its contextualization in Barcelona at the current time. The Hungarian-British polymath Michael Polanyi, who created the term 'tacit dimension of knowledge' and paved the way for the research of the tacit knowledge that allowed a better comprehension of embodied practices, once wrote that 'knowledge is an activity which would be better described as a process of knowing' (Polanyi, 1969, p.132). Therefore, to deploy the process of knowing pottery making, the research project started with pottery classes to learn the basic techniques: coil construction, slab construction and wheel throwing. Besides learning the techniques, these experiences allowed also to learn about the practitioners' trajectory and to get to know other places that are a reference in pottery making in the region of Catalunya, as the city of La Bisbal d'Empordà for example. During this phase of the research, there were visits to different spaces, including pottery studios, pottery schools, design studios, supply stores and makerspaces. During the studio visits, pottery masters were interviewed, including Marc Vidal and Julen Ussia. Designers who are exploring novel techniques, like 3D printing with clay, were also interviewed, including practitioners from the studios Cunicode (Bernat Cuni) and Coudre.

Fig. 2 – Coil construction class.

Fig. 3 – Studio visit: Marc Vidal.

Parallel to the situated experience of exploring a specific craft in a specific territory, references from different projects touching on topics related to the research were analyzed. Lina Bo Bardi, a late Italian architect based in Brazil, had lifelong research around material culture in the country, ranging from craftsmanship to popular art. The architect immersed herself in the local culture, exploring this universe in her architectural work and has curated the iconic exhibition 'A Mão do Povo Brasileiro' (1969/2016), which translates as 'The Hand of Brazilian People', showing the diversity and deep expression of local communities. Atelier NL, a Dutch studio, is researching natural raw materials from different regions in the Netherlands and also from around the world. With the project 'Earth Alchemy Factory' they invite people to learn about these materials through making. They developed workshops, lectures, archives, and material libraries to bring design, education, and production into one system. In their own words: 'we believe that understanding natural material transformation encourages more sustainable cultural evolution' (Sterk & van Ryswyck, n.d.). The designer Andrea de Chirico (2015) developed the project 'Superlocal' which intends to create a global network for local manufacturing, stimulating people to search for resources and labor locally, helping their economies and

craft traditions and encouraging new manufacturing mentalities. 'A factory as it might be' was an architectural installation by Assemble, Granby Workshop, Will Shannon & collaborators (2017), which consisted of a setup of a model factory, equipped with clay and an industrial extruder. The idea was to explore the concept of an itinerant production, by transferring the experimental production approach of Granby Workshop, located in Liverpool, to A/D/O in New York, where the installation occurred. All these examples articulate a place-based approach, bringing people to reflect and co-create in a given context.

II. Making

The Making phase was a moment to explore new creations. Considering the educational context in which the master's degree took place, which included the facilities of a Fab Lab, this phase's experiences had a focus on uncovering the emergent practices of making, exploring the new technologies mentioned previously. With the availability of a Fab Lab, a fabrication laboratory part of a global network, it was analyzed how this environment could allow the rise of new making relationships, as most of these makerspaces tend to produce the same outcomes, with very similar, kind of homogenized material expression. Fabrication laboratories enabled people to access rapid prototyping machines, which are tools created by the industry to facilitate steps of the production. However, the network of makerspaces around the world is very much standardized, with the same offer of machines and use of materials. Would this issue be related to a matter of perception of the role of technology and a lack of material consciousness (Sennett, 2008)? Ambra Trotto suggests a possible approach:

In the context of new craftsmanship, a new material consciousness has to be acquired: new materials are today at hand and have to be combined with traditional materials. Because we act in a world in which systems and services have the potential of becoming more and more intelligent, the consequence is that designers have to deal with digital technology, as a material. (p.198)

Thus, the exploration during this phase of the research looked into how makerspaces could thrive as micro-manufacturing platforms in the city, providing a new material consciousness to connect people to their places and empower themselves and their local narratives.

First, it is important to visualize that the process of making with the support of a machine brings a new layer of mediation. When a craftsperson is creating a piece, the elements of production are the materials, their hands and tools that are, in most of the cases, manipulated manually. When it is inserted during the production a machine that is operated by numerical control, like CNC machines, 3D printers and robotic arms, in which they need to be programmed through software, there is a new layer of creation which is the setup of these commands, the parameters that will execute the task required. The creation can be constrained by the restrictions imposed by a code of processes, in software, for example, impeding a full expression of the creator's intention and subsequently, constraints in cultural expression. Considering these circumstances, it is imperative that makers who use and create digital tools acknowledge these possible restraints and search for manners to work with machines creatively. Therefore, collaborations of craftspeople and digital makers can be very enriching in a scenario of making supported by digital tools. Some researchers are already exploring the topics of cultural expression in a context mediated by digital code. The researcher and author Ron Eglash has been investigating systems that allow the circulation of unalienated value in three domains: expressive value, labor value and ecological value.

By collaborating with indigenous communities and urban artisans to develop both a theoretical framework and experimental intervention in the field of generative justice, his research group has been studying the applications of 'ethnocomputing'. One of their creations was the 'Culturally Situated Design Tools' which contain information about a diverse range of cultural expressions in design, including African fractals, Native American weaving algorithms, Latino drum cycle ratios, urban graffiti curves and more (Eglash, 2018). Researchers Pierre Lévy and Shigeru Yamada have done explorations on 3D-modeling and 3D-printing of the Japanese tea ceremony utensils. In their own words, they 'invite designers and design researchers to look at the potential of new technologies beyond what is classically expected, to consider other cultural perspectives on aesthetics and on making, leading to potential novel practices in design' (Lévy & Yamada, 2017). Padfield et al. (2018) investigated the potentialities of makerspaces to generate new synergies with craft practices, as in the case of their research, establishing a collaboration with glassblowers, which resulted in the creation of digitally designed and CNC fabricated moulds to blow glass into.

For the exploration in this research project, the equipment available to work in consonance with pottery making at Fab Lab Barcelona was a robotic arm for clay extrusion, in a similar process to 3D printing. The tool for extrusion of clay, attached to the robotic arm, was developed by the researchers of the lab. The robotic arm does the movement following a programmed path and the extrusion tool, attached also to a compressor, allows the passing of the clay through a nozzle. To make an object that will be extruded with the use of a robotic arm means designing the path of movement. It is a process slightly different from the one of 3D printing with a commercial 3D printer. In this case, the object is modelled in a 3D environment and, usually, a software adapts it to the printing. As mentioned before, the software can bring restraints, so the possibility to use visual programming appears to be more interesting, as you design step by step and define parameters that can be adjusted according to the designer or maker's decisions, allowing a more tailored outcome to their cultural context. This is what happens when using visual programming with the robotic arm, in which the process is much more artisanal. For the development of this project, it was applied a tool of visual programming to create a parametric design, allowing the change of parameters by the designer/maker's intention. For this experiment, it was designed a parametric dinnerware, or more appropriately, a culture-defined dinnerware, which could be shaped as a plate or a bowl. The design would allow the adaptation of its features according to parameters defined by the user in correspondence to a dinnerware related to a specific culture. The experiments with the robotic arm were limited to the production of artefacts resembling three different culture-defined dinnerwares. A relevant aspect of making with digital tools is that there are no boundaries of information access, allowing for a global exchange of ideas, designs and cultural contacts. It is an aspect that proceeds to blurry boundaries between cultures and could promote ideological homogenization or inadequate cultural appropriation, therefore requesting careful attention. In the case of this research, the purpose of the design exercise was to test the possibilities of a visual programming tool to allow the creation of designs embedded with cultural information, not intending to make claims over other cultures and aesthetics.

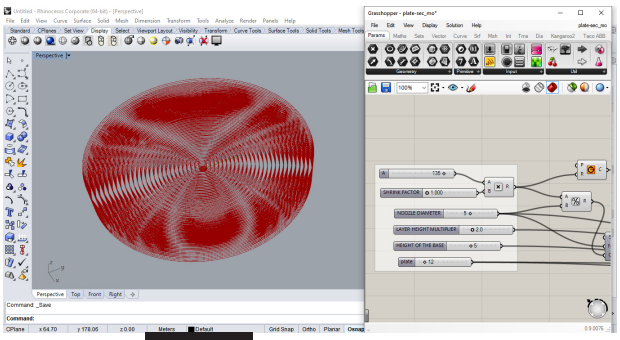

Fig. 4 – Designing with the visual programming tool.

Fig. 5 – Experimenting with the robotic arm.

III. Sharing

From the experience of the auto-ethnography research around pottery making, going from learning traditional and ancient techniques to the possibilities that new technologies bring, the Sharing phase concluded the master's project. It encompassed a final exhibition, which included the pottery pieces done in the process of the research, and the toolkit created to be shared. The toolkit has the format of a publication and it was presented during the master's final collective exhibition, from June to September 2019, and later published openly on the internet (Martinez, 2019). Concerning its content, it did not contain a set of activities or guidelines to be followed by people in other places, yet brings a set of questions aimed at makers, designers and craftspeople. The idea is that the reader, looking to enable new connections of making in their territory, will first investigate the potentialities around different environments and then be encouraged to find ways to connect craftsmanship with digital fabrication. The toolkit invites its reader to engage in making practices and develop a material consciousness as it is believed that by unveiling questions through the bodily act of interacting with what surrounds us, it is possible to raise awareness and then, agency. People can become empowered to change aspects of their everyday life that may have bigger consequences in a systemic change, which reflects an intention of this project aligned with the framework of Transition Design (Irwin et al., 2015) and the UN's Sustainable Development Goals, especially for 'Sustainable Cities and Communities' and 'Responsible Consumption and Production'. As pointed by Professor Gideon Kossoff (2019), who teaches and conducts research in the field of Transition Design and wrote a paper about Cosmopolitan Localism, it is not a matter of choosing to connect only locally, with the closer community, or globally, with the larger community of humanity. Everything is interconnected, as planetary ecosystems are inextricably intertwined at the local and global level. In the framework of Cosmopolitan Localism, attachments, commitments, loyalties, and a sense of belonging happen at multiple levels of scale. Cosmopolitan Localism proposes that the human needs can be satisfied within the constraints and opportunities presented by particular bioregions, while also taking into account that there is common humanity, cohabitation of the planet and co-evolution of cultures, which will help shape localized lifestyles. Therefore, a combination of localized import-substitution and regional and planet-wide networking, with the exchange of knowledge and innovation between communities, could enable new kinds of socio-technical systems that allow self-reliant and circular place-based economies (Kossoff, 2019). Knowledge and solidarity can be shared globally, but it will only settle appropriately if contextualized, enabling the possibility of more enriching relationships between people, materials, and the place.

Collective Exploration: Workshop

With the conclusion of the master's project, there was the desire to continue to explore the subjects investigated, yet, in a collective way. It was remarkable that the process of learning pottery making enabled the creation of material consciousness and it became important to share the process through the exhibition of the research project and the toolkit. Nevertheless, people would only be able to access such findings through their own experience, by dwelling in the making practice. As Polanyi (1969) exposes:

To use language in speech, reading and writing, is to extend our bodily equipment and become intelligent human beings. We may say that when we learn to use language, or a probe, or a tool, and thus make ourselves aware of these things as we are of our body, we interiorize these things and make ourselves dwell in them. Such extensions of ourselves develop new faculties in us; our whole education operates in this way; as each of us interiorizes our cultural heritage, he grows into a person seeing the world and experiencing life in terms of this outlook. (p.148)

Therefore, it became evident that an evolved format to share the knowledge of the research project would be through promoting experiences for the people, which culminated in the creation of workshops. The first action was the collaborative workshop 'ClayTime' for the Maker Faire Barcelona 2019 event, in partnership with Jan Madrenas, a Catalan ceramist, and the designer Barbara Drozdek. This workshop consisted of the first iteration of a proposition to join craftsmanship with digital technologies, in which craftspeople and designers collaborate and invite the community to co-create. In this workshop, around twenty participants, ranging from all ages – children and adults – were invited to create a bowl from local clay. First, Jan Madrenas introduced his craft with pottery making, showing the different materials and techniques he has worked with. Subsequently, he proceeded with a demonstration, teaching ancient techniques – coil construction and modelling a bowl from a clay ball. Participants were invited to apply one or both techniques to create their bowls. Secondly, Barbara Drozdek and Gabriela Martinez, the designers, introduced their projects about crafts and new technologies and invited the participants to interact with a digital technology – 3D scanning with the support of a mobile application, which all participants could install in their phones if desired. After learning the process, participants proceeded in 3D scanning their bowls. In this mobile application, after scanning, you get a 3D digital model of the bowl and it is possible to iterate with it, in three different categories: texture, shape and sculpture. Also, it is possible to export in different formats to use it in software, which leads to the possibility of rematerializing the model through 3D printing and, additionally, to experience AR (augmented reality), inserting the scanned bowl in the real environment.

This workshop showed the potentialities around making in the physical and digital worlds, demonstrating that knowledge from both ancient and current times can coexist, intertwine and open new possibilities in making practices. Assessing participants' impressions after the workshop, many were pleased to learn ancient techniques of pottery making while also experiencing a new digital tool. One of the remarks from a participant was the accessibility of this digital tool, which anyone can download on a phone or other device. Obviously, from a global perspective, the accessibility to technological devices is limited to a certain part of the population, however, it is worth noting that technologies such as 3D scanning, which were restricted to expensive equipment, can now be done through an application in a phone or tablet. Another remark from a participant was a memory of

earlier contact with pottery, as working with clay during childhood. This demonstrates the importance of the experiences a child has in the early stages, which shape perceptions and actions that will happen in the course of life. As pointed in the quote of this section of the paper, by learning and interacting with the outside world, we interiorize this universe of things around us and make ourselves dwell in them (Polanyi, 1969). Understanding participants' perceptions from the workshop, it was possible to visualize points of improvement for the different activities and also imagine how to incorporate different crafts and new technologies for workshops that can be iterated in the future.

Fig. 6 – 'ClayTime' workshop.

Fig. 7 – Participant doing the 3D scan of her bowl.

Conclusion

It was possible to expose through this paper the trajectory deployed during the research project, first, with the master's project, happening as a personal exploration through auto-ethnography, later expanding to a collective exploration, involving co-creation in a workshop. In the auto-ethnography process, the research took place in three phases: Understanding, Making and Sharing. In each phase, it was possible to acquire situated knowledge from the context of pottery making in the city of Barcelona and develop material consciousness. From this experience, it was viable to formulate a toolkit that would make a bridge in turning a personal exploration into a collective one. With the continuation of the research after the conclusion of the master's, the research project could be expanded into the desired collective exploration, being materialized in a workshop for community co-creation.

The objective of the research to explore the possibilities of making in the urban context of the twenty-first century was achieved, bringing an analysis of the role of new technologies in making practices. Craftsmanship and new technologies were intertwined in both explorations, the personal and the collective. With a critical view, the application of new technologies was explored to verify its potentialities as well as its implications.

By navigating from a first-person perspective through the research, making was experienced as a tool of connection. It was possible to deepen the personal relationship with the city of Barcelona, through visiting spaces and learning from craftspeople, designers and makers working with pottery. Material consciousness was formulated by understanding the making practice and engaging in it. As Sennett (2008) affirms, 'the craftsman represents

the special human condition of being engaged' (p.20). From looking at ways to share this condition of being engaged, the essence of this experience was shared through the publication of the toolkit and the realization of the workshop, showing communities how new and enriching relationships can emerge from people, materials, and their place.

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